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ASU Aviation

Sparky's Airmanship and Professionalism Framework

Framework adapted from Kern's Airmanship Model, 1997

technology.asu.edu/aviation

ASU college of technology & innovation
ARIZONA STATE UNIVERSITY

Aimpoint – Airspeed: An Approach to Airmanship & Professionalism in Undergraduate Aviation Education

Randy Gibb
Associate Professor, ASU
Chair, Human & Environmental Systems
Randall.Gibb@asu.edu

This initiative creates the foundation for airmanship and professionalism in the undergraduate aviation student. Given the projected numbers of pilots required in the next decade, safety education and professionalism must begin immediately in the development of future commercial pilots. The aviation industry needs pilots to maintain the highest levels of professional conduct in and out of the cockpit. The Airmanship Model is used as the basis of the framework and engages students and instructors in discussions and performance evaluations. Professionalism is the foundation, stressing individual accountability and ownership. Embedded within professionalism are flight discipline, skill and proficiency, and communication. Seven personal knowledge pillars then link the foundation with the framework's outcomes, situational awareness and decision making. This model helps to develop airmanship and professionalism, acting as both a process and product and is the individual structure that crew resource management builds upon.

AIMPOINT - AIRSPEED

Approach to Airmanship & Professionalism in Undergraduate Aviation Education

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Associate Professor, ASU
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- **Weather**
  - Wind & snow
- **Fatigue**
  - Multiple -leg day
- **Decision-making**
  - Runway landing calculations
  - Policy


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AIMPOINT
AIRSPEED
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TURN COORDINATOR
ALTIMETER
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SWAP

Landing at Airport of Safe & Successful

VISION

Create airmanship and professionalism in undergraduate aviation students

CONTEXT

College students are in a unique phase of life

- **Maturity**
- **Frontal lobe**
- **Social distractions**
- **Engagement & effort**
- **Financial issues**
- **Prioritization of responsibilities**

AIRLINES

Concerned with level of professionalism of their air crew

NBAA TOP 10 SAFETY FOCUS AREAS

1. **Professionalism**
2. **Safety Culture**
3. **Airmanship**
4. Light Business Plane safety
5. Talent Pipeline ☺
6. Impact of Technology
7. Public Policy
8. Airport Safety
9. Fatigue
10. Task Saturation

NBAA Safety Committee Top 10 Safety Focus Areas | NBAA - National Business Aviation Association; http://www.nbaa.org/ops/safety/top-10/

ALPA@WORK

ADVANCING THE PROFESSION...PILOTS AND STAFF

Capt. Dave McKenney (United), ALPA's director of Pilot Training Programs, kicked off a lively discussion of "airmanship," which can mean different things to different people. He warned, "The aviation industry has not fully defined the knowledge, skills, and behaviors associated with 'airmanship' for current operations. As a result, operators have not fully modified pilot training nor developed the mentoring required to develop airmanship skills needed to adjust to the changes required by today's highly automated aircraft, or the experience of entry-level pilots."

McKenney

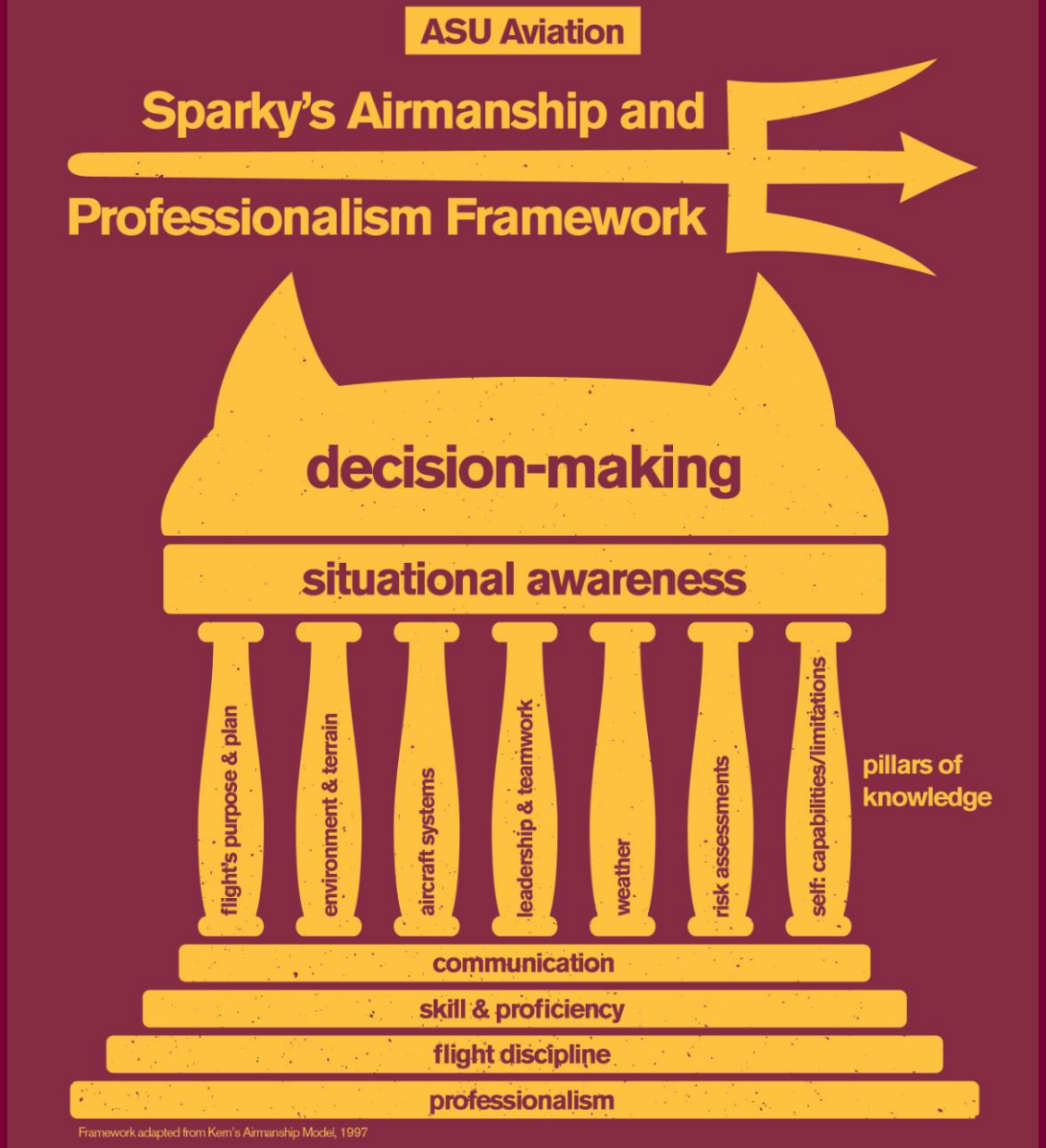
McKenney offered his own draft definition: "Airmanship is a measure of a pilot's awareness of the aircraft and its flight environment and of her or his own capabilities and behavioral characteristics, flying skills, combined with good judgment, wise decision-making, attention to detail, and a high sense of self-discipline."

Air Line Pilot, June 2013, p. 32

The largest untapped resource in the aviation world today is the difference between the levels at which we are currently operating and the levels we are capable of.

The gap is not closed by meeting minimum regulatory requirements; it is closed through enhancing professionalism.

Tony Kern, Bombardier Safety standdown, Brazil, Aug 2013


ASU Aviation
Sparky's Airmanship and
Professionalism Framework
decision-making
situational awareness
flight's purpose & plan
environment & terrain
aircraft systems
leadership & teamwork
weather
risk assessments
self: capabilities/limitations
pillars of knowledge
communication
skill & proficiency
flight discipline
professionalism
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OBJECTIVE OF THE MODEL

Create a framework for discussions, perspective, and assessment in ASU classrooms and ATP aircraft on aviation safety and airmanship regarding what it means to be a professional aviator

PROCESS

The experiential manner in which pilots progress through each foundation, pillar, and capstone to learn, develop, demonstrate, practice, and discover airmanship and professionalism

PRODUCT **Safe & Successful Flying**

Three Levels of Professionalism

Kern, 2011

THE CRUSHING GRIP OF MEDIOCRITY

Mediocrity can become an accomplice toward unsafe practices

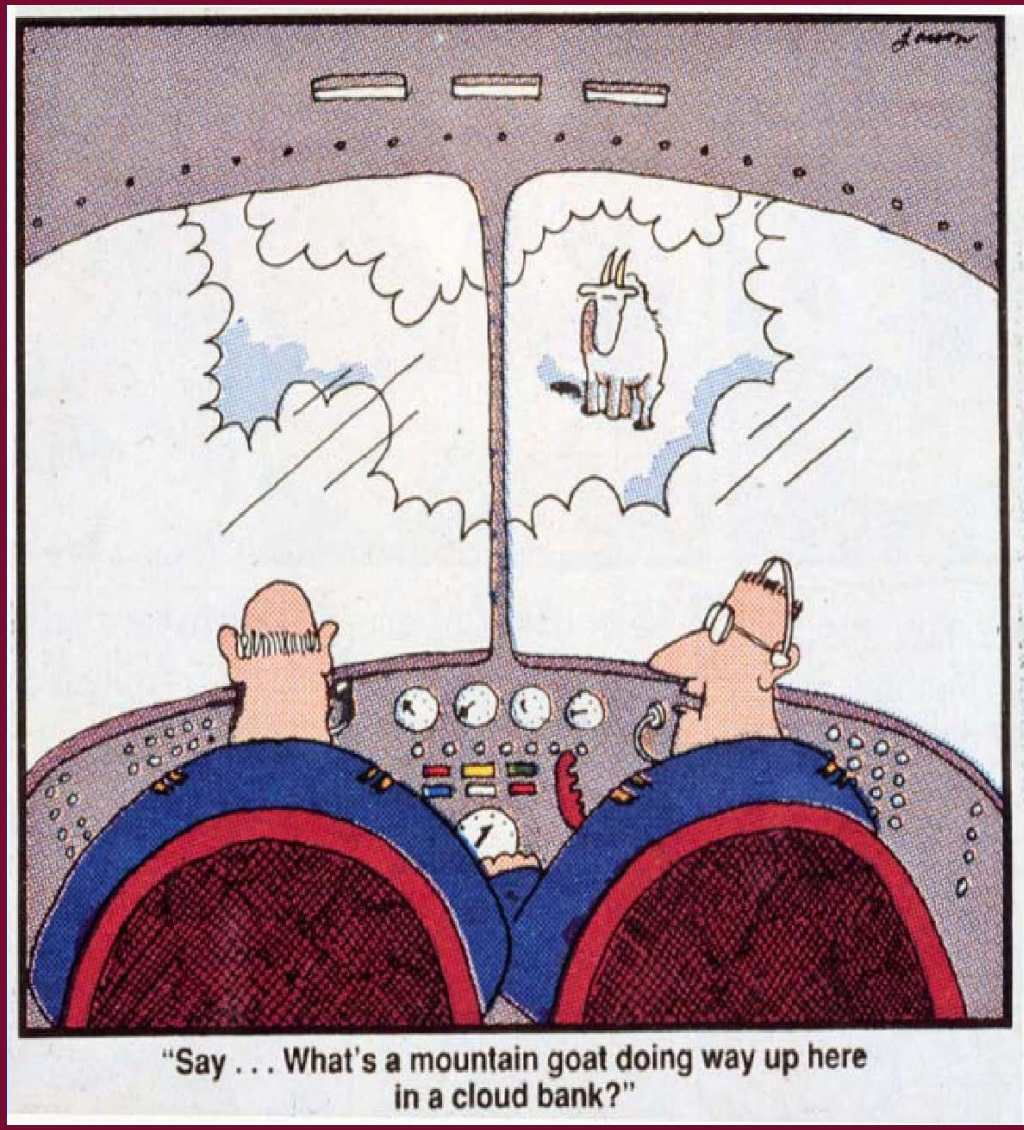
not because of any one intentional act

but allowing one's level of professionalism to erode over time,

thus cracking the airmanship foundation

Accidents do not occur because people gamble and lose, they occur because people do not believe that the accident about to occur is at all possible.

Wagenaar & Groeneweg, 1987, p. 596



Airmanship is…

- the individual structure upon which CRM builds
- the process a pilot makes toward safe flight; and following that process time after time is the making of a professional pilot

EDUCATIONAL EXPERIENCES

Aerodynamics

Meteorology

Power Plants

Instrument Navigation

Air Traffic Control

Aviation Law

Airfield Operations

Weekly Safety Mtgs

Each Flight

Human Factors

COMMON THREAD: INDIVIDUAL

- Normal accidents Perrow
- Active & latent errors Reason
- Normalization of deviance Vaughan
- Drift into failure Dekker
  1. Banality
  2. Incrementalism
  3. Competing resources
- Borrow from safety Dekker
- Blizzard of small judgments…lots of bad little choices Langewiesche
  1. Make money
  2. Be safe (safety is never first)

Four Essentials of a Professionalism Culture

1. Check for competence
2. Train for excellence
3. Practice precision
4. Picture perfection

Kern, 2011

Professionalism must begin on Day-1 of a college student's journey toward becoming a commercial airline pilot

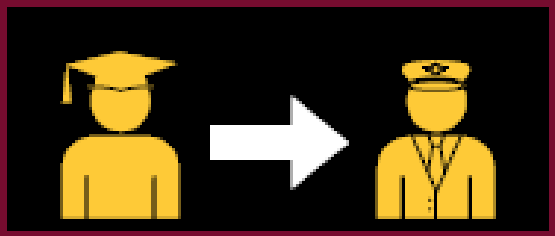
Professionalism and the next generation of commercial airline pilots

Compliance

College

Continuous Improvement

‘Normalization of Excellence’



Greater prudence is needed rather than greater skill

Wilbur Wright, 1901

CASE STUDY

What would you do?

Learning scenario based on a 2007 regional airline incident involving

- **Weather**
  - *Wind & snow*
- **Fatigue**
  - *Multiple -leg day*
- **Decision-making**
  - *Runway landing calculations*
  - *Policy*

CASE STUDY

What would you do?

Learning scenario based on a 1999 accident involving

- **Fatigue**
- **Situational stress**
- **Decision making**
- **Un-stabilized approach**
- **Flight Discipline**
- **Procedures**
- **Communication**
- **CRM**
- **Weather**


American